FLEXIDOME starlight HD 720p60 VR

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HD ONVIF

- Excellent low-light performance (0.017 lx in color)
- Content-based scene analysis optimizes the image processing
- Intelligent noise reduction reduces bandwidth and storage requirements by up to 30%
- Aesthetic vandal-resistant enclosure, suitable for indoor or outdoor applications
- Easy to install with auto zoom/focus SR lens, wizard and pre-configured modes

The FLEXIDOME starlight HD 720p60 VR camera provides clear images 24/7 – even at night or under low-light conditions.
High sensitivity in color (0.017 lx) and monochrome mode (0.0057 lx) enables this camera to work with a minimum of ambient light. This exceptional light sensitivity combined with Content-Based Imaging Technology (C-BIT) ensures crisp, clear, and detailed images in all lighting conditions. The 720p HD can also provide up to 60 images per second.
The aesthetic vandal resistant housing makes the camera suitable for indoor or outdoor installation.

System overview

Compared to SD cameras, the FLEXIDOME HD 720p60 offers, at no higher cost, motorized autofocus, higher resolution, better sensitivity, higher frame rates, and improved picture quality, and is still more bandwidth-efficient. Video storage costs are significantly reduced.

Functions

Exceptional low-light performance
The latest sensor technology combined with the sophisticated noise suppression results in a sensitivity of 0.017 lx in color. The low-light performance is so good that the camera continues to provide excellent color performance even with a minimum of ambient light.
The camera is a true day/night camera with a mechanical filter for truly outstanding nighttime performance (0.0057 lx in monochrome). The filter can be switched remotely, or automatically via a light level sensor or contact input.

Content-based Imaging Technology
Content-Based Image Technology (C-BIT) is used to radically improve image quality in all lighting conditions and to identify areas for enhanced processing. The camera examines the scene using intelligent video analytics and provides feedback to re-tune the image processing. This provides better detail in the areas that matter and better all-round performance. In IVA versions, the intelligent Automatic Exposure (iAE) technology, for example, allows you to view moving objects in bright and dark areas of a scene.

Low bandwidth consumption
The intelligent Dynamic Noise Reduction (iDNR) actively analyzes the contents of the scene to reduce bandwidth and storage requirements. This removes noise artifacts so effectively that compression

efficiency is very high (up to 30% improvement). This results in reduced-bandwidth streams that still retain a high image quality and smooth motion. The camera provides the most usable image possible by cleverly optimizing the detail-to-bandwidth ratio via temporal and spatial noise filtering.
Area-based encoding reduces unnecessary bandwidth. Compression parameters for up to eight user-definable regions can be set. This allows uninteresting regions to be highly compressed, thus lowering bandwidth consumption and storage requirements. Important regions can be tuned for best image quality, thus allowing the user to allocate bandwidth to important parts of the scene.

Fast performance
The 60 images-per-second mode provides for optimum performance in fast action scenes and is particularly suitable for casino and banking applications.

Flexible lens choice
The camera comes with a choice of AVF (Automatic Varifocal) lenses for easy installation. These SR (Super Resolution) lenses have an advanced iris design to ensure that the high resolution HD sensor produces the sharpest image possible, even in the corners.

Simple installation
The camera has a very intuitive user interface that allows fast and easy configuration. Six configurable user modes are provided with the best settings for a variety of applications:

- Indoor – general day-to-night changes without sun highlights and street lighting
- Outdoor – general day-to-night changes with sun highlights and street lighting
- Motion – monitoring traffic or fast moving objects; motion artifacts are minimized
- Lowlight – optimized for sufficient details at low light.
- Intelligent AE (BLC on non-IVA models) – for people moving in front of a bright background
- Vibrant – enhanced contrast, sharpness and saturation

The automatic zoom/focus lens wizard makes it easy for an installer to accurately zoom and focus the camera for both day and night operation. The wizard is activated from the PC or from the on-board camera push button making it easy to choose the workflow that suits best.
The AVF (Automatic Varifocal) feature means that the zoom can be changed without opening the camera. The automatic motorized zoom/focus adjustment with 1:1 pixel mapping ensures the camera is always accurately focused.

Streams
The innovative multi-streaming feature delivers various H.264 streams together with an M-JPEG stream. These streams facilitate bandwidth-efficient viewing and recording as well as integration with third-party video management systems.

An upright mode can be selected for the second stream. In this mode an image of 400 x 720 (9:16 aspect ratio) is cropped from the full sensor image. When the scene to be monitored is suitable to this mode, the bandwidth and storage requirements are reduced.

Storage management
A microSD card can be used for local alarm recording or for Automatic Network Replenishment (ANR) to improve the overall recording reliability. Recording management can be controlled by the Bosch Video Recording Manager (VRM) or the camera can use iSCSI targets directly without any recording software.

Intelligent Video Analytics
IVA versions of the camera use the latest generation of the Bosch Intelligent Video Analysis (IVA) software. This IVA system is the guard-assistant system of choice when reliable indoor or outdoor video analytics is needed. The state-of-the-art system reliably detects, tracks, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image. The face detection feature detects faces in the scene and forwards a high quality JPEG image of the best shot of each face when the face disappears from the scene.
Retrospective forensic search capabilities are available remotely from the web browser or the Bosch Video Client.

Regions of interest
Two Regions of Interest (ROI) can be user defined. The remote electronic pan, tilt and zoom controls allow you to select specific areas of the parent image. These regions produce separate streams for remote viewing and recording. These streams, together with the main stream, allow the operator to separately monitor the most interesting part of a scene while still retaining situational awareness.
The IVA Intelligent tracker can also follow objects within the defined regions of interest. The Intelligent tracker can autonomously detect and track moving objects or the user can click on an object which the Intelligent tracker will then follow.

Aesthetic vandal resistant design
Ideal for indoor or outdoor use, the compact aesthetic design is suitable for installations where housing size and appearance are very important. The cast-aluminum housing, polycarbonate window, and hardened inner liner can withstand the equivalent of 55 kg (120 lbs) of force (IK10). The camera is protected against water and dust to IP 66 (NEMA Type 4X) standards. Using the proprietary pan/tilt/rotation mechanism, installers can select the exact field of view. Mounting options are numerous, including surface, wall, corner, and suspended-ceiling mounting.

Access Security
Password protection with three levels and 802.1x authentication is supported. To secure Web browser access, use HTTPS with a SSL certificate stored in the camera. The video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional encryption site license.

Surveillance software
There are many ways to access the camera's video and IVA-based features: using a web browser, with the Bosch Video Management System, with the Bosch Recording System, with the free-of-charge Bosch Video Client, or with the iPad App.
The Bosch Video Client PC surveillance software offers a user-friendly interface to support easy installation and configuration. It also provides easy live viewing of multiple cameras, playback, forensic search and export.
Access to IVA metadata is available to integrators via RTSP.

Video security App
The Bosch Video Security iPad App has been developed to fully utilize our Dynamic Transcoding features and enable **Anywhere** access to HD surveillance images, even over low-bandwidth connections. The App, together with the Bosch transcoder, is configured to give you complete control of all your cameras, from panning and tilting to zoom and focus functions. It's like taking your control room with you.

Hybrid mode
An analog video output enables the camera to operate in hybrid mode. This mode provides simultaneous high resolution HD video streaming and an analog video output via a BNC connector. The hybrid functionality offers an easy migration path from legacy CCTV to a modern IP-based system.

Connections
The camera conforms to the ONVIF (Open Network Video Interface Forum) Profile S specification. This guarantees interoperability between network video products regardless of manufacturer. For trouble-free network cabling, the camera supports Auto-MDIX which allows the use of straight or cross-over cables. Camera power is supplied via PoE (Power-over-Ethernet) or via the 24 VAC/12 VDC connector. Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Technology Partner Program (TPP) website (tpp.boschsecurity.com) for more information.

Certifications and approvals

HD Standards
Complies with the 296M-2001 Standard in:
- Resolution: 1280x720
- Scan: Progressive
- Color representation: complies with ITU-R BT.709
- Aspect ratio: 16:9
- Frame rate: 25/30 and 50/60 frames/s

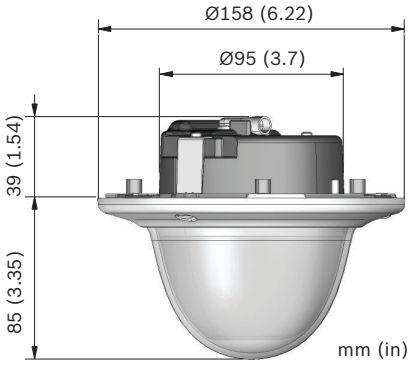
Electro Magnetic Compatibility	
Emission	EN 55022 Class B FCC Part 15 Class B
Immunity	EN 50130-4 (PoE, +12 VDC, 24 VAC)* EN 50121-4
Safety	EN 60950-1 UL 60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	Camera with lens as per IEC 60068-2-6 (5 m/s^2, operational)

* Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

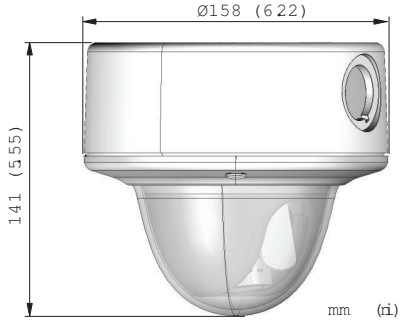
Region	Certification
Europe	CE
USA	UL
	FCC

Installation/configuration notes

Dimensions flush mounting

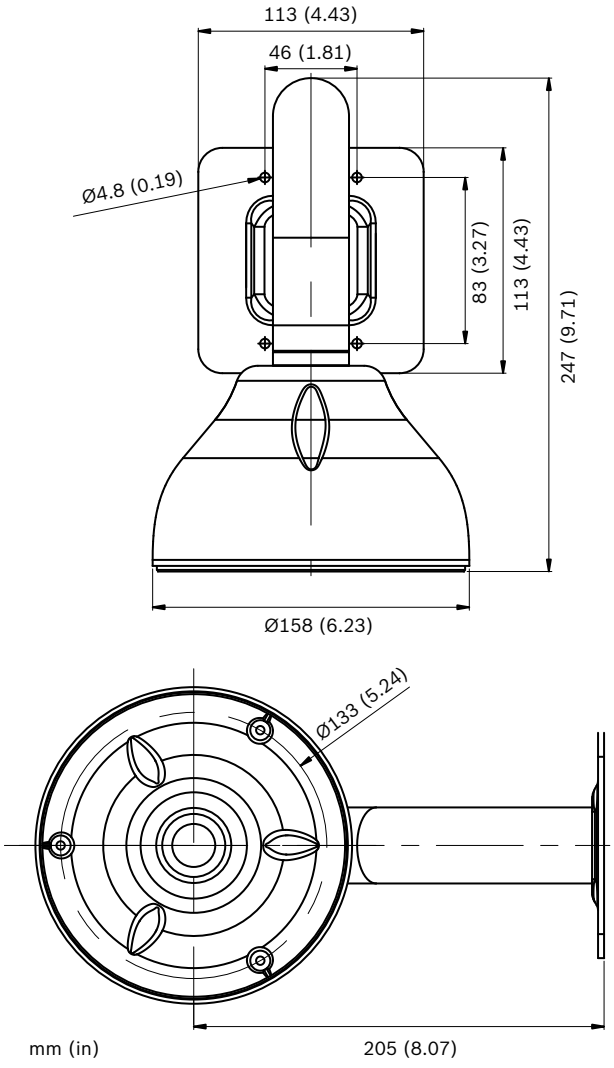


Dimensions surface mounting

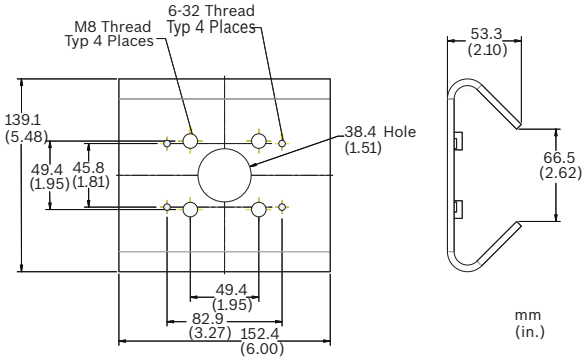


Brackets (not included)

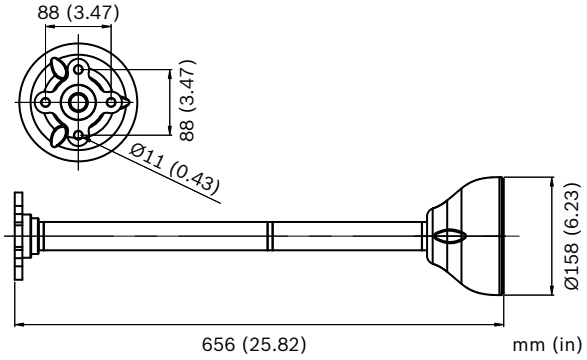
VDA-WMT-DOME –Pendant Wall Mount



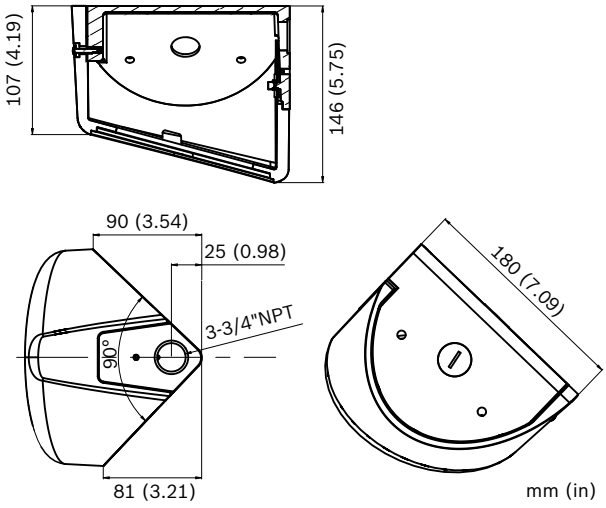
LTC 9213/01 Pole Mount Adapter



VDA-PMT-DOME –Pendant Pipe Mount



VDA-CMT-DOME –Corner Mount



Technical specifications

Electrical

Power Supply	24 VAC 50/60 Hz 12 VDC Power-over-Ethernet 48 VDC nominal
Current Consumption	500 mA | 600 mA IVA (12 VDC) 450 mA | 500 mA IVA (24 VAC) 150 mA | 175 mA IVA (PoE 48 VDC)
Power Consumption	6 W | 7.2 W IVA

Sensor	
Type	1/3-inch CMOS HD
Active Pixels	1280 x 720

Video streams	
Video compression	H.264 (ISO/IEC 14496-10); M- JPEG, JPEG
Streaming	Multiple individually configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth.
Overall IP Delay	Min. 120 ms, Max. 240 ms

GOP structure	IP, IBP, IBBP
Encoding interval	1 to 60 (50) ips
Resolutions (H x V)	
• 720p HD	1280 x 720
• D1 4:3 (cropped)	704 x 480
• SD upright (cropped)	400 x 720
• 480p SD	Encoding: 704 x 480; Displayed: 854 x 480
• 432p SD	768 x 432
• 288p SD	512 x 288
• 240p SD	Encoding: 352 x 240; Displayed: 432 x 240
• 144p SD	256 x 144

Sensitivity (3200 K, scene reflectivity 89%, 30 IRE)

Lens 3 - 9 mm (F1.2)	
• Color	0.017 lx (0.0017 fc)
• Monochrome	0.0057 lx (0.00057 fc)
Lens 10 - 23 mm (F1.6)	
• Color	0.03 lx (0.003 fc)
• Monochrome	0.01 lx (0.001 fc)

Day/Night	Color, Monochrome, Auto
White Balance	ATW (2500 to 10000K), ATW hold and manual Indoor and Outdoor ATW
Shutter	Automatic Electronic Shutter (AES) Fixed (1/30 [1/25] to 1/150000) selectable Default shutter
Backlight compensation (IVA)	Off/Auto/IntelligentAE (iAE)
Backlight compensation (non-IVA)	Off/Auto/BLC
Noise reduction	Intelligent Dynamic Noise Reduction (iDNR) with separate temporal and spatial adjustments
Contrast enhancement	On/off
Sharpness	Sharpness enhancement level selectable
Dynamic Range	84 dB typical
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Intelligent Video Analysis

Audio	
Standard	AAC G.711, 8kHz sampling rate L16, 16kHz sampling rate
Signal-to-noise ratio	> 50 dB
Audio Streaming	Full duplex / half duplex

Input/output

Analog Video out	CVBS (PAL/NTSC), 1 Vpp, BNC, 75 Ohm
Analog Video out (service only)	CVBS (PAL/NTSC), 1 Vpp, 2.5 mm jack, 75 Ohm (non-protected)
Audio	1 x mono line in, 1 x mono line out
• signal line in	12 kOhm typical, 1 Vrms max
• signal line out	1 Vrms at 1.5 kOhm typical,
Alarm	2 inputs
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Relay	1 output
• voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA

Local Storage

Memory card slot	Supports SDHC and SDXC microSD cards
Recording	Continuous recording, ring recording. alarm/events/schedule recording

Software Control

Unit Configuration	Via web browser or Configuration Manager
Software update	Flash ROM, remote programmable

Network

Protocols	IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP, IGMP V2/V3, ICMP, RTSP, FTP, Telnet, ARP, DHCP, SNTP, SNMP (V1, MIB-II), 802.1x, SMTP, iSCSI, UPnP (SSDP)
Encryption	TLS 1.0, SSL, AES (optional)
Ethernet	STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45
PoE supply	IEEE 802.3at Type-2 compliant
Connectivity	ONVIF Profile S Auto-MDIX

Optical

Lens	3 to 9 mm Automatic Varifocal (AVF) SR lens - or – 10 to 23 mm Automatic Varifocal (AVF) SR lens
Adjustment	Motorized zoom/focus
Iris control	Automatic iris control
Viewing angle (3 to 9 mm)	Wide: 96º x 52º (H x V) Tele: 32º x 18º (H x V)
Viewing angle (10 to 23 mm)	Wide: 28º x 15º (H x V) Tele: 12.4º x 6.9º (H x V)

Mechanical

Dimensions (D x H)	158 x 124 mm (6.22 x 4.89 in)
Weight	0.85 kg (1.87 lb) 1.28 kg (2.82 lb) with SMB
Mounting	Flush mount or surface mount
Color	White (RAL9010) trim ring with black inner liner
Adjustment range	360º pan, 90º tilt, ±90º twist
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Trim ring	Aluminum

Environmental

Operating temperature	-30 ºC to +50 ºC (-22 ºF to +122 ºF)
Cold start temperature	-20 ºC (-4 ºF)
Storage temperature	-50 ºC to +70 ºC (-58 ºF to +158 ºF)
Operating humidity	5% to 93% relative humidity
Storage humidity	Up to 98% relative humidity
Impact protection	EN 50102, IK10
Water/dust protection	IP 66 and NEMA Type 4X
Environmental Test Method	EN 50130-5:2011 Alarm systems Part 5 (Class IV Outdoor in general)

Ordering information

FLEXIDOME HD 720p60 VR 3-9 mm
1/3-inch CMOS, IP Vandal-Resistant Dome Camera, 720p60, 3-9 mm SR lens
Order number **NIN-733-V03P**

FLEXIDOME HD 720p60 VR 3-9 mm IVA
1/3-inch CMOS, IP Vandal-Resistant Dome Camera, 720p60, 3-9 mm SR lens, IVA
Order number **NIN-733-V03IP**

FLEXIDOME HD 720p60 VR 3-9 mm SMB
1/3-inch CMOS, IP Vandal-Resistant Dome Camera, 720p60, 3-9 mm SR lens, SMB
Order number **NIN-733-V03PS**

FLEXIDOME HD 720p60 VR 3-9 mm IVA SMB
1/3-inch CMOS, IP Vandal-Resistant Dome Camera, 720p60, 3-9 mm SR lens, IVA, SMB
Order number **NIN-733-V03IPS**

FLEXIDOME HD 720p60 VR 10-23 mm
1/3-inch CMOS, IP Vandal-Resistant Dome Camera, 720p60, 10-23 mm SR lens
Order number **NIN-733-V10P**

FLEXIDOME HD 720p60 VR 10-23 mm IVA
1/3-inch CMOS, IP Vandal-Resistant Dome Camera, 720p60, 10-23 mm SR lens, IVA
Order number **NIN-733-V10IP**

FLEXIDOME HD 720p60 VR 10-23 mm SMB
1/3-inch CMOS, IP Vandal-Resistant Dome Camera, 720p60, 10-23 mm SR lens, SMB
Order number **NIN-733-V10PS**

FLEXIDOME HD 720p60 VR 10-23 mm IVA SMB
1/3-inch CMOS, IP Vandal-Resistant Dome Camera, 720p60, 10-23 mm SR lens, IVA, SMB
Order number **NIN-733-V10IPS**

LTC 9213/01 Pole Mount Adapter
Pole mount adapter with stainless steel straps, light gray finish
Order number **LTC 9213/01**

VGA-IC-SP In-ceiling Support Kit for Various Bosch Dome Cameras
Suspended ceiling support kit for various families of Bosch dome cameras
Order number **VGA-IC-SP**

UPA-2420-50 Power Supply
220 VAC, 50 Hz, 24 VAC, 20 VA Out
Order number **UPA-2420-50**

UPA-2430-60 Power Supply
120 VAC, 60 Hz, 24 VAC, 30 VA Out
Order number **UPA-2430-60**

UPA-2450-50 Power Supply, 220 V, 50 Hz
Indoor, 220 VAC, 50 Hz In; 24 VAC, 50 VA Out
Order number **UPA-2450-50**

UPA-2450-60 Power Supply, 120 V, 60 Hz
Indoor, 120 VAC, 60 Hz In; 24 VAC, 50 VA Out
Order number **UPA-2450-60**

S1460 Service/Monitor Cable
2.5 mm connector to BNC for analog and IP cameras, 1 m
Order number **S1460**

VJT-XTCXF
VideoJet XTC XF, H.264 video transcoder
Order number **VJT-XTCXF**

MVS-FENC-AES BVIP AES 128 Bit Encryption
BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP devices and management stations.
Order number **MVS-FENC-AES**

Accessories

VDA-WMT-DOME Wall Pendant Mount Bracket
Wall pendant mount bracket for FlexiDome cameras
Order number **VDA-WMT-DOME**

VDA-CMT-DOME Corner Mount Bracket
Corner mount bracket for FlexiDome cameras
Order number **VDA-CMT-DOME**

VDA-PMT-DOME Pendant Pipe Mount Bracket
Pendant pipe mount bracket for FlexiDome cameras
Order number **VDA-PMT-DOME**

VDA-PLEN-DOME In-ceiling Housing for Plenums Kit
FLEXIDOME in-ceiling housing installation kit (plenum-rated) for various FLEXIDOME cameras
Order number **VDA-PLEN-DOME**

VDA-455TBL Tinted bubble
Tinted bubble for FlexiDome series
Order number **VDA-455TBL**

VDA-455CBL Clear bubble
Clear Bubble for FlexiDome series
Order number **VDA-455CBL**

Surface Mount Box FLEXIDOME VR
Surface Mount Box for FLEXIDOME VR Cameras
Order number **VDA-455SMB-IP**

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